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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/815,605

04/01/2004

Yibei Ling

APP 1478

9687

9941 7590 08/08/2007
TELCORDIA TECHNOLOGIES, INC.
ONE TELCORDIA DRIVE 5G116
PISCATAWAY, NJ 08854-4157

EXAMINER

DUONG, CHRISTINE T

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

08/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/815,605

Applicant(s)

LING ET AL.

Examiner

Christine Duong

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-9 is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08).
Paper No(s)/Mail Date 08/14/2006.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The references listed in the Information Disclosure Statement, filed on 14 August 2006, have been considered by the examiner (see attached PTO-1449 form or PTO/SB/08A and 08B forms).

Claim Objections

2. **Claims 5** is objected to because of the following informalities:

Regarding **Claim 5**, it is suggested to replace "the measurement time interval" with --a measurement time interval-- in Lines 6-7; "be the current measurement time" with --is a current measurement time-- in Line 7; "the number of messages" with --a number of messages-- in Line 7; "the average fractional difference" with --an average fractional difference-- in Line 13. In addition, it is suggested to define the term "K" as described in Line 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-4** are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al. (PG Pub US 2003/0018794 A1).

Regarding **Claim 1**, Zhang et al. discloses a telecommunications system architecture (**Fig. 1**) comprising:

at least one access network (**the following elements either alone or in combination of wireless network 108 and wireless network component 114 or 116, Fig. 1**);

a mobile host located in said access network (**wireless host 118 or 120, Fig. 1**);

a backbone network (**the following elements either alone or in combination of wired network 106, wireless network 108 and gateway 110 or 112, Fig. 1**), including at least one application server (**host 102 or 104, Fig. 1; where “one or more wireline hosts 102, 104 is a content server” [0024] Lines 4-5**);

an information gateway located in said backbone network (**gateway 110 or 112, Fig. 1 where “network gateway 110, 112 is an intermediate network node coupling the wireline communication link with a wireless communication link”, [0023] Liens 1-3**); and

a throughput estimator residing on said information gateway (**“the innovative heterogeneous network transport layer protocol is designed to enable network elements (e.g., the gateway) to efficiently and accurately distinguish transmission problems occurring in any of a plurality of network components, e.g., a wireless network component, a wireline network component, and the like”, [0058] Lines 1-6 and for example, congestion control parameter described in [0060]**);

wherein said mobile host communicates with said application server through said information gateway (**“wireless host 118 issues a request for content via wireless**

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communication channel 114, gateway 110, wireless network 108, wireline network 106 to host 102", [0066] Lines 6-9) and said throughput estimator provides information useful in optimizing download rate to said mobile host ("**congestion control parameter: issued by the gateway to one or more wireline component network elements to throttle the delivery of content in accordance with current congestion statistics", [0060] Lines 1-4).**

Regarding **Claim 2**, Zhang et al. discloses everything claimed as applied above (see *Claim 1*). In addition, said throughput estimator is selected from the group consisting of an ICMP-based throughput estimator, a HTTP-based throughput estimator, a TCP trace throughput estimator, and a SNMP-based throughput estimator ("**utilizing a standard network transport protocol (e.g., TCP, UDP, etc.)", [0067] Lines 9-10).**

Regarding **Claim 3**, Zhang et al. discloses everything claimed as applied above (see *Claim 1*). In addition, said throughput estimator is a passive throughput estimator ("**If, during the course of transmission, one of the elements identifies an unacceptable transmission condition 614, it is reported to the gateway 110. In response, gateway 110 distinguishes transmission problems arising in a wireline network component of the heterogeneous network from those occurring in the wireless network component based on the control parameter received, and selectively invokes a network component-specific remedy to alleviate the transmission problem, block 616", [0069] Lines 1-9).**

Regarding **Claim 4**, Zhang et al. discloses everything claimed as applied above (see *Claim 1*). In addition, said throughput estimator is an active throughput estimator (“enable a gateway to accurately identify the source of transmission problems, and to effect a network component-specific resolution to the identified problem”, [0059] Lines 4-7).

Allowable Subject Matter

5. **Claims 5-9 are allowed.** The following is the examiner's statement of reasons for allowance:

A comprehensive search of the prior art of record failed to teach, either alone or in combination, a method of optimizing download rate to a mobile host from an application server in a telecommunications network as recited in Claim 5 and in combination with other elements of the claim.

The closest prior art to the invention of Claims 5-9 is Zhang et al. Zhang et al. teaches communication through a gateway between a mobile host and application server and adjusting download rate depending on a measured throughput rate. However, Zhang et al. fails to teach that the measured throughput rate is calculated using $R(\tau) = M / \Delta t$, wherein $R(\tau)$ is the measured throughput rate, Δt is a measurement time interval, τ is a current measurement time and M is a number of messages that arrive during the time interval. Additionally, Zhang et al. fails to teach that the estimated throughput rate for an application flow is calculated using $\hat{R}(\tau) = \alpha(\tau)R(\tau) + (1 - \alpha(\tau))E[R_{\tau - \Delta t}]$, wherein $E[R_{\tau - \Delta t}]$ is the estimated value and $\alpha(\tau)$ is the weight value.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Citation of Pertinent Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Li et al. (US Patent No. 7,099,954 B2) discloses streaming media applications, e.g., sent over the Internet with TCP, can suffer from various fluctuations and low utilization due to TCP's Additive Increase Multiplicative Decrease (AIMD) congestion control mechanism.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Duong whose telephone number is (571) 270-1664. The examiner can normally be reached on Monday - Friday: 830 AM-6 PM EST.

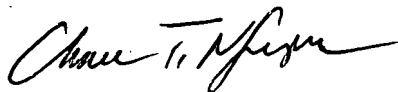
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CTD 08/03/2007

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CHAU NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600